

I Claim:

1. A continuously operational biological reactor for processing animal waste into natural fertilizer, comprising:

a portable frame;

5 an outer drum mounted within the frame and having a plurality of conveyor threads spaced along an interior annular outer drum surface of the outer drum;

an inner drum mounted within the frame and partially enclosed by the outer drum and having a plurality of conveyor threads spaced along an interior annular inner drum surface;

10 the inner drum being in flow communication with the outer drum so that animal waste can move through the inner drum and then the outer drum for processing into natural fertilizer;

the conveyor threads for the outer drum being set at an angle that is opposite of the angle of the conveyor threads for the inner drum;

15 a hopper for receiving the animal waste and for directing the animal waste to the inner drum;

means for compressing and preheating the animal waste received from the hopper;

means for introducing biological microbes into the animal waste received from  
20 the means for compressing and preheating the animal waste;

air flow injection means for producing a continuous flow of air into the inner drum and the outer drum for moving, diluting and discharging noxious gases that accompanying the animal waste;

a center shaft extending through the inner drum and the outer drum so that both the inner drum and the outer drum can be coaxially mounted thereon, the center shaft being in air flow registration with the air flow injection means so that a continuous flow of air can be maintained within and through the inner drum and the outer drum; and

5 control means interconnected to the center shaft for monitoring and controlling the processing of the animal waste within the inner drum and the outer drum and for monitoring and regulating physical parameters such as ph balance, temperature and gas content within the reactor.

2. The continuously operational biological reactor of claim 1 wherein the means for  
10 compressing and preheating the animal waste is a dewatering device that is positioned beneath the hopper and in flow communication therewith.

3. The continuously operational biological reactor of claim 2 wherein the means for introducing biological microbes into the animal waste is a mixer connected to the dewatering device and in flow communication therewith.

15 4. The continuously operational biological reactor of claim 3 wherein the inner drum and the outer drum turn at three revolutions per hour.

5. The continuously operational biological reactor of claim 4 further comprising a plurality of instrumentation probes mounted to the center shaft and extending into the inner drum for providing the control means with information on physical parameters such  
20 as ph balance, temperature, and gas content of the animal waste moving through the inner drum and the outer drum.

6. The continuously operational biological reactor of claim 5 wherein the inner drum and the outer drum are both capable of discharging at least 30 cubic feet of animal waste during each hour of operation.

7. A continuously operational aerobic biological reactor for processing animal waste  
5 into natural fertilizer, comprising:

a transportable frame;

an outer drum mounted within the frame and having a plurality of conveyor threads spaced along an interior annular surface of the outer drum;

an inner drum mounted within the frame and partially encompassed by the outer  
10 drum and having a plurality of conveyor threads spaced along an interior annular surface of the inner drum;

the inner drum being in flow communication with the outer drum so that animal waste can move through the inner drum and then through the outer drum for processing into natural fertilizer;

15 the conveyor threads of the outer drum being disposed at an angle that is opposite of the angle of the conveyor threads of the inner drum;

a hopper for receiving the animal waste and for directing the animal waste to the inner drum;

a dewatering unit for compressing and preheating the animal waste received from  
20 the hopper;

a mixer for introducing biological microbes into the animal waste to facilitate the aerobic decomposition of the animal waste;

air flow injection means for maintaining a continuous flow of air within the inner drum and the outer drum in order to move, dilute and discharge noxious gases that accompany the animal waste;

5 a center shaft extending through the inner drum and the outer drum so that both drums can be coaxially mounted thereon, the center shaft being in air flow registration with the air flow injection means so that a continuous flow of air can be maintained within and through the inner drum and the outer drum; and

control means interconnected to the center shaft for monitoring and controlling the processing of the animal waste within the inner drum and the outer drum and for  
10 monitoring and regulating physical parameters such as ph balance, temperature, and gas content within the inner drum and the outer drum.

8. The continuously operational biological reactor of claim 7 wherein the inner drum and the outer drum both turn at three revolutions per hour.

9. The continuously operational biological reactor of claim 8 further comprising a  
15 plurality of instrumentation probes mounted to the center shaft and extending into the inner drum for providing the control means with information on the physical parameters such as ph balance, temperature, and gas content.

10. The continuously operational biological reactor of claim 9 wherein the inner drum and the outer drum are both capable of processing at least 30 cubic feet on animal waste  
20 during one hour of operation and up to 24 tons of animal waste through one day of continual processing.

11. The continuously operational biological reactor of claim 10 wherein the center shaft includes a plurality of coextensive passageways for accommodating instrumentation and air flow.

12. The continuously operational biological reactor of claim 11 wherein the center  
5 shaft includes a plurality of air shaft vents for directing the flow of air from the passageways and into the inner drum.

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